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BAY-DELTA
PROGRAM

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Memorandum

Date: August 25, 2000

To: Steven R. Ritchie
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From: Mark W. Cowin
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CALFED Bay-Delta Program

Subject: Evaluation of Water Quality in the Central Delta under the Preferred Program Alternative

The purpose of this memorandum is to describe additional information used to support our conclusions regarding expected effects on Central Delta water quality under CALFED's Preferred Program Alternative. Work conducted as part of our effort to develop a Water Management Strategy Evaluation Framework reinforces our reasoning that system operations can be modified to reduce any potential impacts on Central Delta water quality under our Preferred Program Alternative to less than significant levels.

System operation studies and Delta hydrodynamic simulation studies were conducted to evaluate potential water supply and water quality effects under the program alternatives for the Bay-Delta Program Final Programmatic EIS/EIR. The primary purpose of these modeling studies was to provide general indication of flow characteristics within the Delta and Delta tributaries under a variety of hydrological conditions. Results from system operation studies and Delta hydrodynamic simulation studies are most useful to compare relative differences between studies conducted using different sets of assumptions. These model results should not be used to predict absolute results, but rather relative changes between different alternatives.

System operation studies and Delta hydrodynamic simulation studies used to support the conclusions in the Final Programmatic EIS/EIR for the CALFED Bay-Delta program were conducted using a range of assumptions, as described in Appendix A of the Final Programmatic EIS/EIR. By simulating the SWP and CVP operations that would provide

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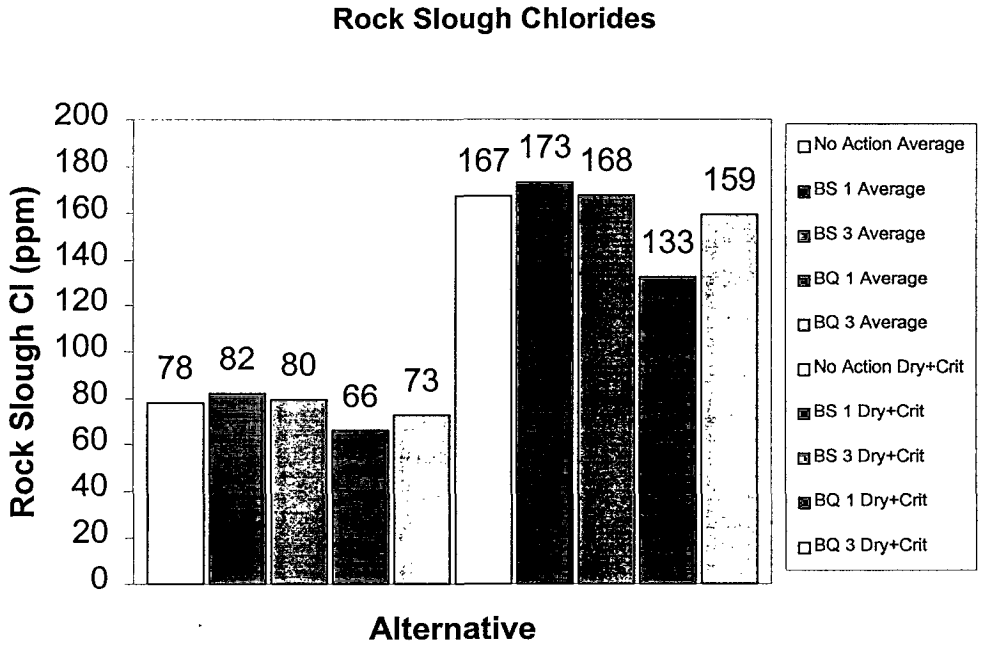
the highest level of exports possible under any given set of Delta protection criteria, estimates of potential environmental effects are greater than would be expected if a more balanced operational strategy is used. This provides for conservative estimates of potential environmental effects. The operational assumptions used to conservatively predict potential environmental effects are not intended to be adopted as part of the Preferred Program Alternative. Different strategies for SWP and CVP operations might better accomplish CALFED's multiple objectives. For example, SWP and CVP project operations that release water from upstream reservoirs specifically to improve water quality above Delta standards (and subsequently do not result in the maximum possible exports) would be consistent with the Preferred Program Alternative.

Results from analyses of example alternatives under the Water Management Strategy Evaluation Framework illustrate this concept. Figure 1 depicts results showing that by changing operational strategies while using the same facility mix, different levels of salinity in the central Delta can be achieved. (A memo to Steven R. Ritchie dated August 25, 2000, Subject: Water Management Strategy Evaluation Framework, Status of Work and Available Data, describes the alternatives and the data available from the analyses, as well as the nomenclature for the various alternatives.)

Figure 1- Chloride Levels Estimated at Rock Slough for Different Water Management Strategy Alternatives



Alternative BS-1 represents a resources mix that includes new surface and groundwater storage operated to maximize supply benefits and provide a modest improvement in

fisheries flexibility. Alternative BQ-1 represents the same resources mix operated to improve water quality in the Delta and to provide the same level of fisheries flexibility. The long-term average chloride concentration at Rock Slough for BS-1 is estimated at 82 ppm. Under Alternative BQ-1, the long-term average chloride concentration in reduced to 66 ppm. As noted above, these results should not be taken as absolute predictions, but rather as relative differences between alternatives. In other words, when facility mix B is operated to improve water quality, the expected long-term average chloride at Rock Slough is 15% lower than the no action alternative and 20% lower than the alternative maximizing exports. In dry and critical years, BQ 1 results in 20% lower chloride levels than in the no action alternative.

These reductions in salinity in the central Delta are accomplished by making operational changes such as timing of deliveries and operation of in-Delta conveyance features. The model results from the WMS example alternatives indicate that operational strategies different than those used to conservatively predict potential environmental effects can reduce salinity impacts for the Preferred Program Alternative to less than significant levels. These model results demonstrate that different operational strategies, coupled with other mitigation measures will allow implementation of the Preferred Program Alternative while limiting salinity increases in the Central Delta to less than significant levels.